

June 23, 2005

Dr. Malcolm K. Hughes
Professor
Laboratory of Tree-Ring Research
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Dear Dr. Hughes:

Questions have been raised, according to a February 14, 2005 article in *The Wall Street Journal*, about the significance of methodological flaws and data errors in studies you co-authored of the historical record of temperatures and climate change. We understand that the Mann, Bradley, Hughes studies of temperature proxy records (tree rings, ice cores, corals, etc.) formed the basis for a new finding in the 2001 United Nation's Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report (TAR). This finding – that the increase in 20th century northern hemisphere temperatures is “likely to have been the largest of any century during the past 1,000 years” and that the “1990s was the warmest decade and 1998 the warmest year” – has since been referenced widely and has become a prominent feature of the public debate surrounding climate change policy.

However, in recent peer-reviewed articles in *Science*, *Geophysical Research Letters*, and *Energy & Environment*, researchers question the results of this work. As these researchers find, based on the available information, the conclusions concerning temperature histories – and hence whether warming in the 20th century is actually unprecedented – cannot be supported by the Mann *et. al.* studies cited in the TAR. In addition, we understand from the February 14 *Journal* and these other reports that researchers have failed to replicate the findings of these studies, in part because of problems with the underlying data and the calculations used to reach the conclusions. Questions have also been raised concerning the sharing and dissemination of the data and methods used to perform the studies. For example, according to the January 2005 *Energy & Environment*, such information necessary to replicate the analyses in the studies has not been made fully available to researchers upon request.

The concerns surrounding these studies reflect upon the quality and transparency of federally funded research and of the IPCC review process – two matters of particular interest to the Committee. For example, one concern relates to whether IPCC review has been sufficiently independent. We understand that you were a contributing author of the IPCC chapter that assessed and reported your own studies, and that two study co-authors were also contributors to this very same chapter. Given the prominence these studies were accorded in the IPCC TAR and your position and role in that process, we seek to learn more about the facts and circumstances that led to acceptance and prominent use of this work in the IPCC TAR and to understand what this controversy indicates about the data quality of key IPCC studies.

As you know, sharing data and research results is a basic tenet of open scientific inquiry, providing a means to judge the reliability of scientific claims. The ability to replicate a study, as the National Research Council has noted, is typically the gold standard by which the reliability of claims is judged. Given the questions reported about data access surrounding these studies, we also seek to learn whether obligations concerning the sharing of information developed or disseminated with federal support have been appropriately met.

In light of the Committee's jurisdiction over energy policy and certain environmental issues, the Committee must have full and accurate information when considering matters relating to climate change policy. We open this review because this dispute surrounding your studies bears directly on important questions about the federally funded work upon which climate studies rely and the quality and transparency of analyses used to support the IPCC assessment process. With the IPCC currently working to produce a fourth assessment report, addressing questions of quality and transparency in the process and underlying analyses supporting that assessment, both scientific and economic, are of utmost importance if Congress is eventually going to make policy decisions drawing from this work.

To assist us as we begin this review, and pursuant to Rules X and XI of the U.S. House of Representatives, please provide the following information requested below on or before July 11, 2005:

1. Your *curriculum vitae*, including, but not limited to, a list of all studies relating to climate change research for which you were an author or co-author and the source of funding for those studies.
2. List all financial support you have received related to your research, including, but not limited to, all private, state, and federal assistance, grants, contracts (including subgrants or subcontracts), or other financial awards or honoraria.
3. Regarding all such work involving federal grants or funding support under which you were a recipient of funding or principal investigator, provide all agreements relating to those underlying grants or funding, including, but not limited to, any provisions, adjustments, or exceptions made in the agreements relating to the dissemination and sharing of research results.

4. Provide the location of all data archives relating to each published study for which you were an author or co-author and indicate: (a) whether this information contains all the specific data you used and calculations your performed, including such supporting documentation as computer source code, validation information, and other ancillary information, necessary for full evaluation and application of the data, particularly for another party to replicate your research results; (b) when this information was available to researchers; (c) where and when you first identified the location of this information; (d) what modifications, if any, you have made to this information since publication of the respective study; and (e) if necessary information is not fully available, provide a detailed narrative description of the steps somebody must take to acquire the necessary information to replicate your study results or assess the quality of the proxy data you used.
5. Regarding study data and related information that is not publicly archived, what requests have you or your co-authors received for data relating to the climate change studies, what was your response, and why?
6. The authors McIntyre and McKittrick (*Energy & Environment*, Vol. 16, No. 1, 2005) report a number of errors and omissions in Mann *et. al.*, 1998. Provide a detailed narrative explanation of these alleged errors and how these may affect the underlying conclusions of the work, including, but not limited to answers to the following questions:
 - a. Did you run calculations without the bristlecone pine series referenced in the article and, if so, what was the result?
 - b. Did you or your co-authors calculate temperature reconstructions using the referenced “archived Gaspé tree ring data,” and what were the results?
 - c. Did you calculate the R² statistic for the temperature reconstruction, particularly for the 15th Century proxy record calculations and what were the results?
 - d. What validation statistics did you calculate for the reconstruction prior to 1820, and what were the results?
 - e. How did you choose particular proxies and proxy series?
7. Explain in detail your work for and on behalf of the Intergovernmental Panel on Climate Change, including, but not limited to: (a) your role in the Third Assessment Report; (b) the process for review of studies and other information, including the dates of key meetings, upon which you worked during the TAR writing and review process; (c) the steps taken by you, reviewers, and lead authors to ensure the data underlying the studies forming the basis for key findings of the report were sound and accurate; (d) requests you received for revisions to your written contribution; and (e) the identity of the people who wrote and reviewed the historical temperature-record portions of the report, particularly Section 2.3, “Is the Recent Warming Unusual?”

Dr. Malcolm K. Hughes

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Thank you for your assistance. If you have any questions, please contact Peter Spencer of the Majority Committee staff at (202) 226-2424.

Sincerely,

Joe Barton
Chairman

Ed Whitfield
Chairman
Subcommittee on Oversight
and Investigations

cc: The Honorable John Dingell, Ranking Member
The Honorable Bart Stupak, Ranking Member,
Subcommittee on Oversight and Investigations